

Appl. No. 10/524,398
Amdt. Dated May 19, 2008
Reply to Office Action of November 19, 2007

REMARKS/ARGUMENTS

Applicants respectfully request reconsideration of the prior art rejections set forth by the Examiner under 35 U.S.C. sections 102 and 103. Applicants respectfully submit that the prior art references of record, whether considered alone, or in combination, fail to either teach or suggest Applicants' presently claimed invention.

More specifically, by this amendment, Applicants have modified each of the independent claims to underscore the differences between the present invention and the prior art cited by the Examiner. More specifically, as noted in the specification at page 6, with reference to Figure 31 in the first full paragraph, the ink ejecting apparatus may include a unit head with an ejecting direction that is different from those of the other heads incorporated into the device such that the ejecting direction of ink droplets generally ejected from the liquid ejection part of the Nth head is inclined to the (N-1)th head. This may be due to the fact that the ejection characteristics such as the general ejecting directions vary for each of the unit heads due to errors in manufacturing, for example.

As noted in the specification, in this case, even when every head is improved in its overall accuracy, dots may nonetheless be arranged in the same way as those illustrated in Figure 30 so that a conspicuous stripe may be undesirably produced in the boundary region between the unit heads. As further described on page 6, it is extremely difficult to improve the arrangement accuracy

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of every unit head as well as unifying the ejection characteristics for each of the unit heads. Even if it were possible to achieve such uniformity, there is the significant problem of the considerable increase in manufacturing costs for achieving this goal.

As noted in the specification beginning on page 7, the prior art techniques for solving this problem suffered from numerous deficiencies and therefore there remained a need for overcoming the problems associated with differing characteristics for the various unit head elements. It is only Applicants' instant disclosure that provides the unique and non-obvious solution for overcoming these substantial deficiencies. In accordance with the present invention, actual characteristics for individual unit head elements are determined and if they vary sufficiently from predetermined or nominal characteristics for the ink ejecting head unit elements, an auxiliary control is invoked to alter the ink ejection characteristics for at least substantially all of the ink ejection elements of a given unit head. The prior art cited by the Examiner provides no teaching or suggestion whatsoever regarding this advance in the art. at best, the prior art merely describes altering individual ink ejecting elements of each of a plurality of unit heads. In contrast, in accordance with the present invention, the macro characteristics associated with each of a plurality of unit heads are determined and based on comparison with the nominal or desired primary ejecting characteristics, this system may determine that invoking the auxiliary control is preferable in order to overcome the recognized deficiencies in image generation resulting from

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unit head elements that have overall characteristics that are at odds with a desired operating condition for each unit head.

For the purpose of highlighting these distinctions between the presently claimed invention and the prior art, Applicants have modified each of the independent claims to specify that the ink ejecting apparatus and/or method includes: a principal control means for controlling the ink ejecting elements of each unit head based upon a nominal operating condition for the unit head; and

an auxiliary control means for controlling the ink ejecting elements of each of a plurality of unit head elements based upon a determined operating condition for the unit head which differs from the nominal operating condition for the corresponding unit head.

Because the prior art cited by the Examiner provides no teaching or suggestion whatsoever regarding this advance in the art, Applicant's respectfully submit that all claims now stand in condition for allowance

The Commissioner is hereby authorized to charge any fees due or to credit any overpayment to Deposit Account No. 50-3891.

Respectfully submitted,

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